

Closure:

1. Muscular Closure:

1. The muscular closure should be considered as reconstruction. In the transtibial amputation the fascia of the superficial muscular compartment is advanced up and over the end of the tibia to be sewn into the periosteum of the tibia and to the fascia of the anterior compartment. Since this muscular fascia is sewn to the bone via its periosteum, this is a myodesis. Some surgeons prefer to drill holes in the edges of the tibia just medial and lateral to its crest. I personally have found that I am better able to advance the muscle proximally up and over the tibia by sewing to periosteum, and am not able to advance the muscle as well using the drill hole technique. In the extended posterior flap technique (link to it), the fascia is advanced several cm proximal to the cut edge of the tibia.
2. To accurately secure this myodesis, typically three or four sutures are carefully placed under direct vision in the periosteum and in the deep and superficial layers of the fascia. The sutures do not grab muscle tissue. They may secure the edge of the Achilles tendon in the longer transtibial amputation. The sutures are all placed and clamped, and only tied after placing all three or four myodesis sutures. If the first suture is tied, it is more difficult to accurately see the layers and accurately place the subsequent myodesis sutures.
3. The myodesis is typically performed with an absorbable suture of moderate strength such as number 1 or 0 suture material.

2. Fascial Closure: The fascial closure needs to be secure.

1. A deep suction drain is placed prior to the fascial closure. The drain should not exit near the subcutaneous surface of the tibia, as the small scar left from the drain exit site can be a source of pain in a prosthesis. Instead, the drain should be placed so as to exit in the soft tissue of the anterior compartment.
2. The fascial closure is typically performed with an absorbable suture of moderate strength such as 0 suture material.

3. Subcutaneous Tissue Closure

1. Skin healing in an amputation surgery can take longer than in other surgical procedures. A subcutaneous closure can help re-enforce the approximation of the skin edges and minimize wound dehiscence.
2. The subcutaneous closure is typically performed with an absorbable suture of light strength such as 2-0 suture material.

4. Skin Closure:

1. As mentioned, skin healing in amputation surgery can take longer than in other surgical procedures. A suture technique that minimizes trauma to the skin edge is needed. I typically use 3-0 nylon suture and prefer it over staples as I can leave the nylon in longer with less irritation. It is not uncommon to leave sutures in 4 or 5 weeks. I have found that skin staples tend to show irritation and redness sooner than nylon suture.
2. The skin closure is typically re-enforced with skin tapes to help take tension off of the sutures.

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